

Petanque Games and Physical Fitness in Third-Grade Students at Mulia Islamic School

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Abstract

12 Objectives:

This study aims to determine the effect of Petanque on the physical fitness level of third grade students at SD Mulia Islamic School, particularly in terms of accuracy, hand eye coordination, and cardiorespiratory endurance.

Materials and Methods:

This study employed a quantitative approach using a quasi experimental method with a One Group Pretest Posttest Design. The sample consisted of 20 third grade students of SD Mulia Islamic School, selected using a total sampling technique

Results:

The results showed changes in the categories between the pre test and post test. In the pre test, the accuracy and hand eye coordination tests were dominated by the poor category, with 13 students (65%) and the moderate category, with 7 students (35%), respectively. Meanwhile, the endurance test showed that 15 students (75%) were in the poor category and 5 students (25%) were in the moderate category. After receiving the Petanque treatment, the post test results showed an improvement in the students' performance.

Conclusions:

Based on the research results, the implementation of Petanque games improved the physical fitness of third grade students at Mulia Islamic School. The pre test results showed that most students were in the low and moderate categories for accuracy, hand eye coordination, and endurance. After the treatment, the post test results shifted to the moderate and good categories, with no students remaining in the low category. The Wilcoxon Signed Rank Test showed an Asymp. Sig. (2 tailed) value of $0.000 < 0.05$, indicating a significant effect of Petanque games on students' physical fitness.

Keywords: Petanque Games; Physical Fitness Elementary School Students.

Introduction

Physical education is an important part of the educational process in elementary schools. Through physical education, students not only acquire knowledge about sports but also gain movement experiences that support their physical, mental, social, and emotional development. Regular physical activity can help improve students' health and physical fitness. Therefore, physical education learning should be designed in an engaging manner and adapted to the characteristics of elementary school students so that learning objectives can be achieved optimally.

Physical fitness refers to a person's ability to perform daily activities without experiencing excessive fatigue while still having sufficient energy reserves to engage in other activities. The level of physical fitness is very important for elementary school students because it is directly related to their health, growth, physical development, and ability to participate in learning activities at school. Students with good physical fitness tend to be more active, enthusiastic about learning, and able to participate in learning activities more optimally than students with low levels of physical fitness.

However, in reality, the level of physical fitness among elementary school students is currently relatively low. Technological developments and changes in lifestyle have caused children to spend more time playing with gadgets rather than engaging in physical activities. Lack of physical activity can lead to decreases in endurance, muscle strength,



coordination, and students' physical abilities. In addition, physical education learning that lacks variety can make students less interested in participating in sports activities at school. One effort that can be made to improve students' physical fitness is to provide engaging and enjoyable sports activities. Sports learning presented in the form of games can encourage students to be more physically active and motivated to participate in learning activities. One sport that can be implemented in physical education learning is Petanque.

Petanque is a sport originating from France and is played by throwing metal balls as close as possible to a target ball called a jack or boka. This sport requires concentration, movement coordination, balance, accuracy, and good body control. In addition, Petanque can be played by various age groups, including elementary school students, because the game is relatively easy to learn and does not require excessively strenuous physical activity. In Petanque, students perform various movements, such as walking, bending, throwing, maintaining body balance, and coordinating their eyes and hands. These activities can indirectly help improve several components of students' physical fitness, including muscle strength, movement coordination, agility, endurance¹⁵ and balance. Therefore, Petanque has good potential to be implemented as one of the learning media in physical education at the elementary school level. Besides being easy to play, Petanque can also be modified according to the conditions and abilities of elementary school students. Teachers can adjust the field size, throwing distance, and equipment so that students feel more comfortable and can participate more easily in the game. Enjoyable learning activities can encourage students to move more actively, thereby having a positive impact on improving their physical fitness.

SD Mulia Islamic School is one of the schools that implements physical education as part of its educational process. However, based on the results of preliminary observations conducted by the researcher, several students were found to have low levels of physical fitness. This was indicated by their limited endurance during sports activities, tendency to become tired easily, lack of physical activity, and low enthusiasm for participating in physical education learning. This condition requires attention so that students' physical fitness can be improved.

Considering these conditions, innovative learning approaches are needed to increase students' interest and physical activity during physical education lessons. One alternative that can be implemented is the use of Petanque games in physical education learning. Petanque was selected because it incorporates enjoyable game elements, is relatively easy for elementary school students to perform, and involves physical activities that can support students' physical fitness. Previous research has shown that sports games can have a positive effect on students' physical abilities and fitness. Game based activities encourage students to move more actively, thereby potentially improving physical fitness components such as strength, endurance, coordination, and agility. Thus, Petanque games are expected to serve as one potential solution for improving the physical fitness¹⁸ of elementary school students.

Materials and Methods

Study Design

This study employs a quantitative¹⁴ approach using a quasi experimental method. The research design utilized is the One Group Pre test and Post test Design. In this design, the researcher administers a pre test prior to the intervention and a post test after the intervention has been implemented.

Study Participants

The population for this study consists of all 20 third grade students at Mulia Islamic School. When the total population is fewer than 100, the entire population can be used as the sample to ensure greater accuracy in the research results. Since there are only 20 third



grade students at Mulia Islamic School, the entire group was selected as the research sample.

Study Organization

Data were collected through the Tok Tok Ball accuracy test, the Child Ball hand eye coordination test, and a 600 meter running test to measure cardiorespiratory endurance.

Statistical Analysis

The data were analyzed using descriptive statistics and the Wilcoxon Signed Rank Test at a significance level of 0.05.

Results

Descriptive statistical analysis was conducted to provide an overview of the characteristics of the pre test and post test data. The values analyzed included the sample size, minimum value, maximum value, mean, and standard deviation. The number of students analyzed across all variables was 20.

Table 1. Descriptive Statistics Results for Pre test and Post test

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Pre Accuracy	20	2,00	5,00	3,2000	1,05631
Pre Coordination	20	7,00	12,00	8,9500	1,46808
Pre Run	20	4,58	7,30	5,9255	95626
Post Accuracy	20	3,00	7,00	4,7000	1,34164
Post Coordination	20	11,00	15,00	12,8000	1,36111
Post Run	20	3,55	6,04	4,7075	74517
Valid N (listwise)	20				

The Pre Test results for accuracy showed a minimum score of 2.00 and a maximum score of 5.00. The mean score was 3.20, with a standard deviation of 1.05631. These results describe the students' accuracy ability before receiving the Petanque game treatment. The Post Test results for accuracy showed a minimum score of 3.00 and a maximum score of 7.00. The mean score increased to 4.70, with a standard deviation of 1.34164. The difference in mean scores between the Pre Test and Post Test was 1.50 points.

The percentage increase in mean accuracy was approximately 46.88%. This calculation was obtained from the difference in mean scores of 1.50 compared with the initial mean score of 3.20. This increase indicates an improvement in the students' accuracy ability after receiving the Petanque game treatment. The minimum score also increased from 2.00 to 3.00, while the maximum score increased from 5.00 to 7.00. These results indicate that changes in ability were observed not only in the mean score but also in the range of scores obtained by the students.

The Pre Test results for coordination showed a minimum score of 7.00 and a maximum score of 12.00. The mean score was 8.95, with a standard deviation of 1.46808. The Post Test results showed a minimum score of 11.00 and a maximum score of 15.00. The mean score increased to 12.80, with a standard deviation of 1.36111. The difference in mean scores reached 3.85 points. The percentage increase in the mean coordination score was approximately 43.02%. This increase indicates a change in the students' ability to



perform activities requiring coordination between visual perception and hand movements.

The minimum score increased from 7.00 to 11.00, while the maximum score increased from 12.00 to 15.00. The standard deviation decreased from 1.46808 to 1.36111. This condition indicates that the students' scores after the treatment tended to be more concentrated around the mean compared with their scores before the treatment.

The Pre Test results for the 600 meter run showed a minimum time of 4.58 minutes and a maximum time of 7.30 minutes. The mean running time was 5.9255 minutes, with a standard deviation of 0.95626. The Post Test results showed a minimum time of 3.55 minutes and a maximum time of 6.04 minutes. The mean running time decreased to 4.7075 minutes, with a standard deviation of 0.74517.

The decrease in the mean running time of 1.218 minutes indicates an improvement in the students' endurance ability. The interpretation of the running test differs from that of the accuracy and coordination tests. Higher accuracy and coordination scores indicate better ability, whereas a lower running time indicates better endurance performance. The percentage decrease in running time was approximately 20.56%. This decrease indicates that the students were able to complete the 600 meter distance in a shorter time after receiving the treatment.

Discussion

The results showed that the physical fitness level of students at Mulia Islamic School was initially suboptimal in accuracy, hand eye coordination, and endurance, with most students categorized as low. This condition indicated the need for more active and structured physical activities. Accuracy required concentration, movement control, distance estimation, direction, and throwing force, which are closely related to Petanque. Previous studies have also shown that pointing and shooting performance in Petanque are associated with accuracy and hand eye coordination (Salahuddin et al., 2026; Safitri et al., 2024; Nento et al., 2026). Therefore, the initial condition indicated the need for activities that could provide repeated movement experiences and stimulate students' physical and motor development.

After the implementation of Petanque, the students showed improvement in all measured components. Accuracy improved through repeated activities involving aiming, estimating distance, controlling throwing force, and directing the ball toward the target. These findings are consistent with Habibah et al. (2025) and Arliza (2026), who reported that target based activities and Petanque exercises could improve shooting accuracy. Hand eye coordination also improved because students repeatedly integrated visual information with hand movements when aiming and throwing the ball. This finding is supported by Jati (2023) and Fahrizal (2023), who reported a relationship between hand eye coordination and shooting accuracy in Petanque. Endurance also showed improvement as students were physically engaged throughout the game through repeated throwing, walking, changing positions, and retrieving balls. This finding is consistent with studies showing that Petanque Kids can stimulate gross motor development among elementary school students (Muzakki et al., 2026).

The Wilcoxon Signed Rank Test further showed a significant difference between students' conditions before and after the Petanque intervention in accuracy, hand eye coordination, and endurance. The improvement in accuracy can be explained by repeated practice in estimating distance, controlling movement, and adjusting throwing direction and force. Hand eye coordination was stimulated through the integration of visual perception and hand movements during repeated throwing activities. Meanwhile, the improvement in endurance should be interpreted as the result of students' repeated physical involvement during the learning process rather than as a specific endurance training effect, since Petanque is not primarily an endurance sport. These findings are



supported by previous studies on target based Petanque activities and Petanque Kids (Juhanis & Fatoni, 2026; Wijayanti et al., 2024; Yasa et al., 2025).

Overall, the findings indicate that Petanque had a significant effect on the measured physical fitness components of students at Mulia Islamic School, namely accuracy, hand eye coordination, and 600 meter running endurance. The improvement was demonstrated descriptively through changes in students' categories and statistically through the Wilcoxon test. Thus, Petanque can be considered an alternative physical education activity for elementary school students, provided that its implementation is adapted to students' age, physical abilities, safety, available facilities, and learning characteristics.

Conclusions

Based on the research results, the implementation of Petanque games improved the physical fitness of third grade students at Mulia Islamic School. The pre test results showed that most students were in the low and moderate categories for accuracy, hand eye coordination, and endurance. After the treatment, the post test results shifted to the moderate and good categories, with no students remaining in the low category. The Wilcoxon Signed Rank Test showed an Asymp. Sig. (2 tailed) value of $0.000 < 0.05$, indicating a significant effect of Petanque games on students' physical fitness.

Acknowledgments

The author extends their gratitude to SD Mulia Islamic School and the Bina Guna College of Sports and Health, as well as the researchers and writers who participated in and supported this research project.

Conflict of Interest

The authors declare no conflict of interest.

Funding

This research received no external funding.

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